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(54) Title of the invention: Television receiver

(57) Abstract:

Purpose: To realize an inexpensive electronic game capable of being built in a television receiver by utilizing a screen display function, a remote control transmitter and a microcomputer in a device performing the electronic game by utilizing a function displaying numerals or character and pattern on the screen of the television receiver.

Constitution: This receiver is composed of a character generator 6 displaying the channel numbers and various kinds of set state of a television receiver, a microcomputer 5 performing the channel control and sound volume control, and the like, of the television receiver and a remote control transmitter 8 is provided with a first switch changing over a normal first screen display state displaying channel numbers and various kinds of set states and a second screen display state where an electronic game is performed, and performs an electronic game by utilizing the time counter provided on the microcomputer.

[Claims]

[Claim 1] The 1st switch that switches the 1st screen display state that carries out a screen display of the channel number of a television receiver, and the like, and the 2nd screen display state that performs electronic games is provided in a remote control transmitter of a television receiver, by distinguishing whether it is in the 1st screen display state or the 2nd screen display state, operation of the 2nd switch group of this remote control transmitter is switched, a television receiver characterized by that the number of microcomputers which control using a means to generate a character, a number, a drawing, and the like which are displayed in the state of the 1st screen display for the 2nd screen display state, and the 1st screen display state and the 2nd screen display state is 1.

[Claim 2] A television receiver performing switching operation in either 1 direction of the 1st screen display state that carries out screen display of channel number of television receiver, and the like, and the 2nd screen display state that performs electronic games by of a change by permutation combination operation of a plurality of switches in claim 1.

[Claim 3] A television receiver including electronic games which use a numerical value which the number machine of hour meters which a microcomputer which controls the 2nd screen display state in the 2nd screen display state of claim 1 includes generates, and make the projecting dice a exponentiation of 2.

[Claim 4] A television receiver of claim 1 removing a power control switch of a television receiver from the 2nd switch group in claim 1.

[Detailed description of the invention]

[0001]

[Industrial application] This invention relates to the device which performs electronic games using the function which displays a number, a character, a drawing, and the like on the screen of a television receiver.

[0002]

[Description of the prior art] In a television receiver, there is a function that informs a televiewer by displaying the number and character which were generated by the character generator which contained the received channel, the broadcast state (a stereophonic broadcast and monaural broadcast), and the like on a screen. For example, an example of the art is shown by JP 55-22995 A.

[0003] The microcomputer and the like which were built in the television receiver can perform control of a screen display from this character generator.

[0004] This microcomputer (a microcomputer is called next) detects operation of the remote control transmitter for those television receivers other than the mentioned above control, and is controlling picture regulation of a television receiver, for example, regulation of a luminosity, a color, and the like.

[0005] In this invention, the mentioned above screen display function, remote control transmitter, and microcomputer are used. Thus, it aims at realizing the cheap electronic games which can be built in a television receiver.

[0006]

[Problems to be solved by the invention] As an electronic game machine, a game program is read from a cassette type medium, a CD-ROM medium, and the like, a game is advanced with the inverter of a game machine body corresponding to a user's button grabbing, and there is a device displaying on the screen of television by making the output into a video signal audio signal. Although an electronic games inside the television receiver is realizable by arranging such a device inside the case of a television receiver, as arrangement and the game of the game progress button which the acceptance mechanism and user of a medium of a game program operate are displayed, if terms and conditions, such as circuit connection in consideration of the compatibility of a video signal, an audio signal, and the usual TV footage, are satisfied, for a television receiver, it will become a factor of a cost increase.

[0007]

[Means for solving the problem] The 1st screen display state where this invention displays a channel number and various established states of a television receiver, the 1st switch that switches the 2nd screen display state that performs electronic games is provided, and in order to perform the 1st the mentioned above screen display in the above 2nd state of a screen display, a number, a character, and a graphic signal which are generated by character generator which a television receiver includes are used. Also, the 2nd switch group for performing a channel change, volume control, and the like of a television receiver except the 1st switch is used for advance of electronic games, and the above mentioned 1st switch and

the 2nd switch group are provided in a remote control transmitter for television receivers. A microcomputer which performs channel control and volume control of this television receiver performs control of advance of electronic games, and a number used as a keyword of electronic games is generated using the number machine of hour meters which this microcomputer has.

[0008]

[Function] If the above mentioned 1st switch is operated in the state of viewing the usual television receiver, a television receiver will stop the above 1st screen display state with the microcomputer which detected this operation, and it will switch to the 2nd screen display state that performs electronic games. Conversely, if the above mentioned 1st switch is operated in the state of the 2nd screen display, it will return to the 2nd screen display state.

[0009] Operation of the 2nd switch group provided in a remote control transmitter except the above 1st switch is used as an advance button of a game by storing on a microcomputer that it is in the 2nd screen display state, namely, electronic games state.

[0010] By using the value of the number machine of hour meters of the time which detected operation of the 2nd switch group, a microcomputer takes out a certain one numerical element out of a limited numerical element. To do this, there is a kind of roll the dice, for example.

[0011]

[Example] Next, the example of this invention is described.

[0012] Drawing 1 shows the block diagram of the television receiver which uses this invention. The picture of the television receiver is projected by the tuner 1, the video signal processing circuit 2, the output circuit 3, and

the course of the cathode-ray tube 4. 5 is a microcomputer that performs channel selection operation of the tuner 1, and control of the video signal processing circuit 2. The light wave signal from the remote control transmitter 8 carries out command distinction of the electrical signal changed by the remote control light sensing part 7, and motion control, such as a channel change, is performed. 6 is a character generator, with the microcomputer of 5, the signal and display position to output are specified, a TV signal is overlapped in the video signal processing circuit 2, and a numeric character and the like are displayed on the cathode-ray tube 4.

[0013] The example of the navigational panel of the remote control transmitter 8 is shown on drawing 3. As for a of drawing 3, a channel switching button group and c of the on-off button of a power supply and b are volume up and down buttons. If the button of 12 of the b section is pushed, the 12th channel is received by the mentioned above microcomputer 5 and the tuner 1, and it will be in the 1st screen display state as shown on drawing 2 a by the microcomputer 5 and the character generator 6. If the d button of a remote control transmitter is pushed in this state, it will be in the 2nd screen display state where a screen display is shown on drawing 2-b by the microcomputer 5 and the character generator 6, like the above. Namely, it is in the state of electronic games. Change to this 2nd screen display state is stored by the microcomputer 5.

[0014] Although the electronic game of drawing 2 b shows the example of the slot machine game, it starts by operation of the e button of drawing 3, a predetermined time interval is set, and the graphic character of the A section B section

C section is changed. In order to stop the variation operation of the character of each part, 3 buttons of f1-f3 of the f section of drawing 3 are used. That is, if the button of f1 is pushed, the character variation operation of the A section will stop, and f2 (B STOP) and f3 (C STOP) button also carry out same operation next. A stop of all the parts will add or subtract the score preliminary defined depending on how for the character which stopped to be located in a line. The example of the flow chart of the program of the microcomputer which performs the above operation is shown on drawing 4.

[0015] Here e of a remote control transmitter, and the button of the f section, it operates as the advance button, namely, the start stop button, of a game in the above 2nd screen display state and in the above 1st screen display state, e is for television / video change, f1 is a button for silence, f2 for a channel up and f3 for a channel down. Although it is the same as the time of the above 1st screen display state and the 2nd screen display state, as the signal oscillated when this operates the button of e and the f section has stored whether the mentioned above microcomputer 5 is in the 2nd screen display state, it is possible.

[0016] As an example of a slot machine game, although indicated by JP 54-94940 A and JP 54-12185 A, as the memory and data storage part of an indicative data are needed, the capacity of the microcomputer built in a television receiver is considered, and the following means are used in this invention.

[0017] The microcomputer has the number counter of hour meters (timer) for the time management of processing of various input and output. For example, it is shown by 2-52 by the example of Mitsubishi Electric microcomputer M37100M8 series from 2-3 of '91 Mitsubishi Electric semiconductor data book (Vol.2 edited 1 by an 8 bit one-chip microcomputer).

[0018] As this timer is carrying out count operation at the high speed for about 2 microseconds and this does not have correlativity with a user's remote control operation time, the stop button of the mentioned above slot machine game is pushed, when a microcomputer judges a STOP command and suspends character variation operation, the value of this timer is read, and the probability of the character to stop becomes almost equivalent by determining in which character it fixes.

[0019] The example at the time of using 8 numbers for each character of A, B, C section is shown on drawing 5.

[0020] The character to change is carried out to 0-7, and if correlation with 3 bits of the value of this timer read when suspending character variation operation, and the character to stop is defined like drawing 5, the number to 0-7 will stop by establishment of about $1/8$. 3 character combination at this time will be $8 \times 8 \times 8 = 256$.

[0021] When suspending character variation operation, the character fixed by the above the variation operation of a character. It is made later from this side than the usual time interval, for example, when suspending the character variation operation usually performed in 20 ms by 7, it stops, changing the character variation operation of the part of 4->5->6->7 at about 200 ms - 300 ms. The mentioned above change can be attached too.

[0022] The coincidence decision of 3 characters can be performed by carrying out the coincidence comparison of the mentioned above timer value, and, thus, score calculation of a game is performed. Also, this is shown in the flow chart of drawing 4.

[0023] If the remote control transmitter d button of drawing 3 is pushed, a microcomputer will perform control below a part of drawing 4. A screen display of drawing 2 b is outputted. If 1 step of printable characters of an A-C part are changed after detecting operation of a remote control transmitter e button in u part and operation of a remote control transmitter f button is detected in a part, it will be investigated in a part which button it is. When the f button is not operated, the operation returns with a predetermined time interval, and changes 1 step of printable characters is repeated. In a part, it returns like the above without processing anything, when the A section has already stopped. When the A section has not stopped yet, operation which stops the printable character of the A section in a part is performed. It carries out an operation of a part is also the same. In a part, if it judges whether 3 characters stopped and all the parts stop, when 3 characters are the same, a coincidence decision is performed in a part, and a score is increased, and when other, a score will be reduced. It waits for operation of the start button of remote control transmitter e again after that. In ending electronic games, it returns to the usual state, namely, the 1st screen display state, by pushing the d button of the mentioned above remote control transmitter.

[0024] Correlation with 3 bits of the value of this timer and the character to stop A section B section C section is also changeable, respectively. For example, if it performs saying that the B section takes the exclusive OR of 2, of the numerical value of 3 bits of the value of a timer, and the C section takes the exclusive OR of 5, change is attached to how for each part to be located in a line like drawing 6. In the kind of character to display, when it is used, other characters, for example, alphabet, change is attached further.

[0025] In the mentioned above example, although the number of the change characters of each part also shows 8 examples by the cube of 2, namely, 8 numbers, by 4, the reading number of bits, even if the reading number of bits of this timer is increased, and it is considered as n bit and also increases the number of change characters to the n th power, for example, 16 and 32, of 2, since projecting spots become equivalent, they can complicate a game more.

[0026] The 2nd example of electronic games is shown on drawing 7. This game is a dice game and a total of 1-6, 0, and 8 of - (minus) is shown on the I part of drawing 7 by the change of a dice. The Ha part which is a marker under the mentioned above I part in the e start button of the remote control transmitter of drawing 3 begins to move to a transverse direction with a predetermined time interval, and a marker stops by the stop button of f1 of a remote control transmitter. The stop operation of a marker uses the number counter of hour meters of a microcomputer (timer) like the operation explained in the mentioned above slot machine game. If the 1st player pushes a start and a stop button and dice which came out is decided, the number of the characters which show the position of the piece of the

1st player shown on the low 1 of drawing 7 will change. An end of operation of the 1st player will change the number of characters with which a start stop button is pushed next and the 2nd player shows it similarly to the low 2. The following 3rd and 4th player operate it and a game progresses. In this way, a game will be completed if the number of the graphic characters of one of players is in agreement with the going-up part shown on NI of drawing 7.

[0027] Although the spots of the usual dice are 1-6, correlation with the reading value of this number counter of hour meters (timer) is made easy to take as 8 kinds by adding 0 and - (minus) to this, and they are equating the probability of occurrence. About the migration method to 2nd screen display state shown on this example, it is the same as that of the above.

[0028] Although the above example showed the example which uses one dedicated buttons with the remote control transmitter of drawing 3 as a moving means of the 1st screen display state and 2nd screen display state, permutation combination operation of a plurality of buttons can also be realized, and this operation does not need to provide a button specially on a remote control transmitter.

[0029] The e section f section of game progress button on drawing 3 of an example can also assign the channel switching button of the b section. However, from a viewpoint of the safety in the case of a television receiver, avoiding assigning the power control button of the drawing 3 to a section is wise.

[0030]

[Effect of the invention] According to this invention, the remote control transmitter for television receivers operates advance of electronic games, a special final controlling element is not needed and the button number of a remote control does not increase, either. The display of electronic games can use the character generator for performing a usual screen display, and can constitute it with low price. As the number counter of hour meters (timer) which a microcomputer has is used, program capacity for games can also be lessened comparatively and becomes that to which the game itself was varied. By the above, the cheap electronic games which can be built in a television receiver are realizable.

[Brief description of the drawings]

[Drawing 1] is an easy block diagram of the television receiver in which the example of this invention is shown.

[Drawing 2] is an example of the 1st screen display state and 2nd screen display state.

[Drawing 3] is an example of the remote control transmitter of a television receiver.

[Drawing 4] is a notional flow chart of the game control of an example.

[Drawing 5] is an explanatory view of a change order of the game graphic character of an example.

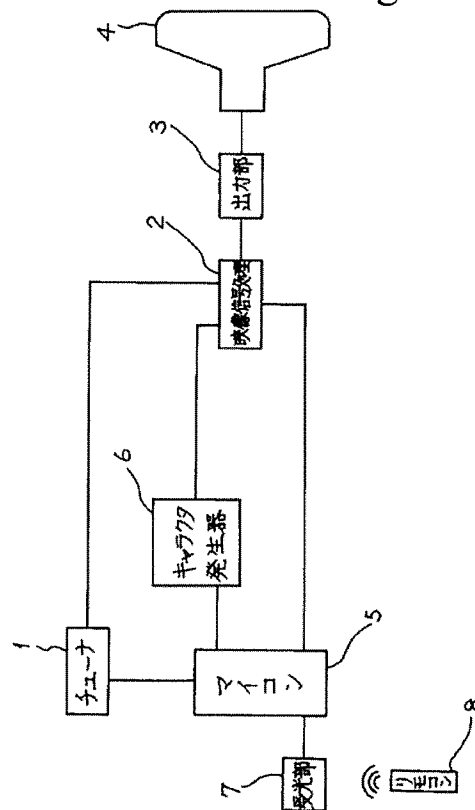
[Drawing 6] is the 2nd example of a change order of the game graphic character of an example.

[Drawing 7] is further example of 2nd screen display state.

[Description of numerals]

6... The character generator which displays the channel number and the various established states of a television receiver, 5... The microcomputer which performs channel control, volume control, and the like of a television receiver, 8... A remote control transmitter, 7... Light sensing part which receives the light wave signal from a remote control transmitter

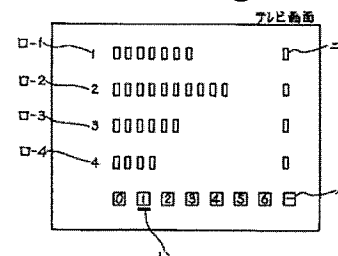
Drawing 1



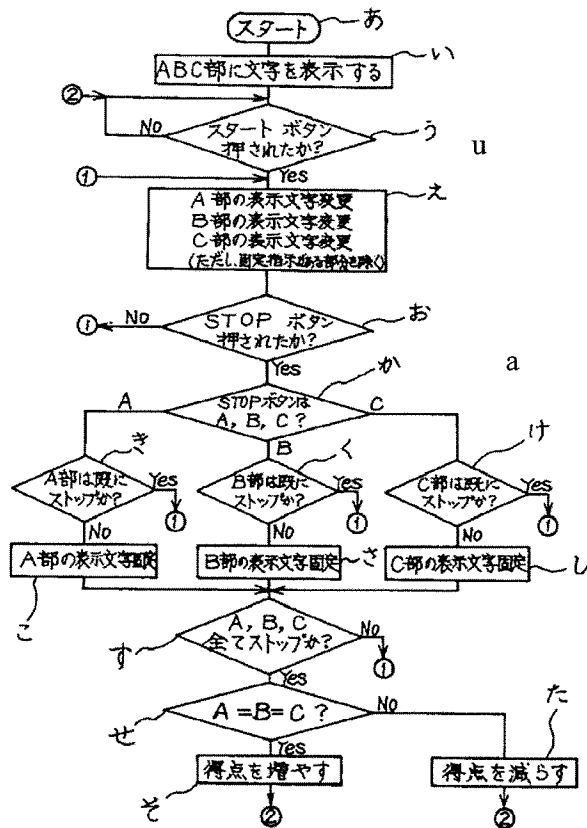
Drawing 6

カウンタ値	2とのEOR	5とのEOR	A部	B部	C部
000	010	101	0	2	5
001	011	100	1	3	4
010	000	111	2	0	7
011	001	110	3	1	6
100	110	001	4	6	1
101	111	000	5	7	0
110	100	011	6	4	3
111	101	010	7	5	2

Drawing 7



Drawing 4

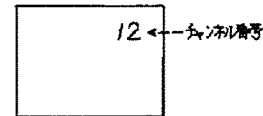


Drawing 2

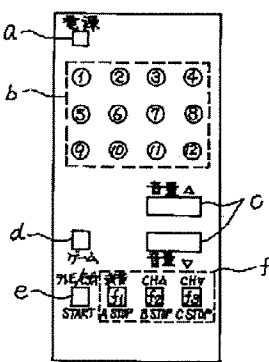
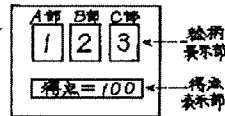
Drawing 3

Drawing 5

(図2-a)通常の画面表示例



(図2-b)電子ゲームの画面表示例



リモコン送信機の操作パネルの一例

0	----	000
1	----	001
2	----	010
3	----	011
4	----	100
5	----	101
6	----	110
7	----	111

表示文字の
変更機能

タイマーカウンタ
下位3ビットの値